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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,004	05/31/2001	Joel W. Hoehn	S01.12-0805	7513

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EXAMINER

PADGETT, MARIANNE L

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 10/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. <u>09/871,004</u>	Applicant(s) <u>Hoehn et al</u>	
Examiner <u>M.L. Padgett</u>	Group Art Unit <u>1762</u>	

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 6/24/03
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-32 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☒ Claim(s) 4-13 & 22-27 is/are allowed.
- ☒ Claim(s) 1-3, 14-21 & 28-32 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 7/28/03
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

1. Claim 4 plus claims 5-13 and 22-27 dependant therefrom are now in allowable form, as the combination of the limitations from claim 1 and those previously in claim 4, has no first paragraph 112 problems, and distinguishes are cited art.

2. Claims 18-20, (21) and 28-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

While the amendment to claim 18 removes the art rejection over the IBM (1/1994) reference, due to the "consisting essentially of" phrase now in line 2, this phrase would appear to exclude the applicant's embodiment on page 18 of the specification, which uses an ultrasonic agitator with the solvent. Unless it can be shown that the ultrasonics applied with the solvent are not providing a materially significant effect in combination with the solvent (i.e. solvent at claimed temperature or $T < 100^{\circ}\text{C}$ provides like effect with or without ultrasonics), it would appear that the addition of "consisting essentially of" creates an enablement problem, by excluding a taught element of the second embodiment which provides claim 18's support/enablement.

It is also noted that the embodiment teaches the process preferably carried out at below 100°C , and most preferably at room temperature. However, page 3, in the summary, gives the claimed limit of $< 200^{\circ}\text{C}$ generically, then on page 4, lines 12-18 associates it with the solvent procedure. While the summary's discussion does not mention use of the ultrasonic agitator, thus potentially providing support for showing it is not necessary, ultrasonics input energy to the process and its use can be considered excluded by "consisting essentially of" unless there is/are reason(s) on the record, as in an affidavit, to show that ultrasonic use does not critically materially effect the ability to carry out the claimed process.

Claim 21 is included, pending show of whether or not the solvents without ultrasonic are able to effect the claimed results.

3. Claims 1-3 and 14-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

See reasons given in section 1 of Paper No. 10 (November 6, 2002). Applicants essentially state on the record that claim 1 is not enabled, (page 5 of 6/24/03 response, first sentence of second paragraph). Claim 1 as written does NOT require any other means besides temperature for removal of the excess fluorine layer, so the breath or scope of the claim lacks enablement, since merely using $T \leq 200^{\circ}\text{C}$ will not remove fullerene-fullerene bonded layers. Note inclusion of claim 21 in claim 1 would supported provide means for the results, providing that it can be shown that the ultrasonic are not necessary for the solvent technique to work (see section 2 above).

4. Claims 1-3 and 14-17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for removal of fullerene to fullerene bonded layers when using beam generators, or solvents with ultrasonic at claimed temperatures, does not reasonably provide enablement for removal of these layers without use of taught beams or solvents/ultrasonic in the claimed temperature range. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

See discussed in Paper No. 10, sections 1-2, and above in sections 2 and 3.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under

35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-3, 14-15, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over IBM Bulletin (January/1994) as previously discussed in Paper No. 8, Section 5 plus Paper No. 10, Section 6.

Note claim 18 and its dependent 19 and (new) 28-32 are not included, as the "consisting essentially of..." requirement removes these claims but the broad generic claims and new claim 21 which may include other procedures with solvent use are not excluded by the claim language.

7. Other art of interest, includes Dykes et al (6,586,069 B2) with overlapping inventors, claims to products and teaching the differential bond strength between fullerene-fullerene and fullerene-surface bonds (abstract, summary; column 3, lines 13-28; column 4, lines 12-55; column 7, lines 22- column 8, lines 11 and 44- column 9, lines 12 and {methods for depositing fullerene coatings} 25-67+; and column 11, lines 6-14 {heat at $T \approx 225-300^{\circ}\text{C}$ to remove excess layer of fullerenes above one mono-layers}). The Dykes et al patent submitted by applicants, is equivalent to 2002/0031615 A1 previously cited by the examiner, and the closest claims therein are 14 and 16, where the heating could be after deposition as claimed, but is at higher temperatures than claimed in this application.

Schleier-Smith et al, is not prior art, but has processes of interest involving fullerene monolayers and solvent solutions at 80°C [0041]. The publication to Granstrom teaches heat to remove all but the surface layer (Figures 5-6; [0044], [0062]), but uses $T \approx 500^{\circ}\text{K} = 227^{\circ}\text{C}$, thus higher than claimed.

8. Applicant's arguments filed June 24, 2003 and discussed above have been fully considered but they are not persuasive.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH**

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication from the examiner should be directed to M. L. Padgett whose telephone number is (703) 308-2336. The examiner can generally be reached on Monday-Friday from about 8:30 a.m. to 4:30 p.m.; and fax phone numbers are (703) 872-9306 (official); and (703) 305-6078 (unofficial).

M.L. Padgett/dh 9/10/03
October 2, 2003



MARIANNE PADGETT
PRIMARY EXAMINER